

LINDA KATHERINE VANCE

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EDUCATION:

- 2004: **Doctor of Philosophy (Ph.D.)**, University of California, Davis, Graduate Group in Ecology. Exam Areas: Ecological Principles, Conservation Biology, Experimental Design and Analysis, Ecology of Fishes, Watershed Ecology. Dissertation: Stream temperature dynamics and impacts on the distribution of salmonid fishes.
- 1986-1997: **Undergraduate coursework, Natural Science.** Norwich University, Vermont, and Los Rios Community College, California. 50+ semester units in botany, zoology, ecology, chemistry, physical science and mathematics.
- 1980: **Master of Laws (LL.M.)**, York University, Osgoode Hall Law School, Downsview, Ontario, Canada, 1980.
- 1977: **Bachelor of Civil Law (B.C.L.[J.D. Equivalent])**, McGill University Law School, Montreal, Quebec, Canada, 1977.
- 1974: **Diplôme d'études collegiales (D.E.C.)**, Dawson College, Department of Social Sciences, Montreal, Quebec, Canada, 1974. Major: History and Philosophy.

EMPLOYMENT:

- May 2005-present **Ecologist/Projects Manager. Montana Natural Heritage Program, Helena, MT.** Design and carry out wetland and watershed assessments using field-based measurements, vegetation surveys, and remotely-sensed data. Analyze geospatial relationships between land use and land cover variables and watershed health using ArcGIS desktop software, database software, and statistical packages. Evaluate changes in wetland condition and distribution in major Montana watersheds. Act as project manager on state and federal contracts, writing grant proposals, overseeing budgets and deliverables, and preparing final reports for distribution and publication on the organizations website. Conduct field assessments of plant communities and perform rare plant surveys. Consult with state, federal, local and non-governmental partners on wetland and landscape assessments, and on ecological impacts of law and policy changes.
- May, 2003-June 2004 **Ecologist/herpetologist, Forest Service Pacific Southwest Research Station, Albany, CA.** (13 month term appointment) Conduct field research on mountain yellow-legged frogs, garter snakes and fish in Dusy Basin (Kings Canyon/Sequoia NP), Yosemite, and Plumas National Forest. Use pit tagging and radio telemetry techniques to examine distribution, site fidelity, dispersal and competitive interactions. Analyze geospatial relationships between species and their environment with global positioning devices, desktop geographic information systems (ArcGIS), database software, and statistical packages (S-Plus, SigmaPlot). Prepare research findings and management options for Forest-based biologists. Prepare Record of Establishment for Research Natural Area on Klamath National Forest. Supervise field crews and maintain field camp in remote, high-elevation settings.
- September, 2000-February, 2003 **Director, Biological Sciences Programs, University Extension, University of California at Davis, Davis, California.** Design professional and continuing education programs in life sciences, agriculture, agricultural business development, informatics, forensics, fire protection, natural resources, watershed management, and field biology. Create and manage

professional master's degree and certificate programs. Recruit, train and evaluate instructors. Hire, train and supervise program representatives and program assistants. Prepare and manage annual budget in excess of \$800,000. Participate in overall management structure through Management Issues Council, Program committees, task forces, Dean's Council, etc. Establish collaborations with university faculty, Cooperative Extension, and State and Federal agencies. Negotiate and execute training grants and contracts. Sample of courses designed: Water Quality Monitoring in Streams and Rivers I (Nutrients), II (Pathogens) and III (Pesticides); Instream Habitat Improvements for Regulated Rivers; Riparian Ecology; Ecology and Management of Vernal Pool Grasslands; Fundamentals of Salmonid Biology; California Inland Fish Identification; Biomarker Measurements in Water Quality Monitoring; GIS Applications in Watershed Management; GIS Applications in Vegetation Management; Ecology and Management of Waterfowl Habitat

January, 2000-
September 2000

Interim County Director and Farm Advisor (50% time), University of California Cooperative Extension Inyo/Mono Counties, Bishop, California. Survey agency personnel, stakeholders and other appropriate parties to determine the public issues education and applied research needs in UCCE's program areas (agriculture, natural resources, family and consumer science, youth development) in two eastern Sierra counties. Supervise office manager and program representative. Promote outreach mission of UCCE in two-county region through attendance and participation at scoping meetings, public hearings, user group meetings, and watershed advisory committees. Participate in Coordinated Resource Management Plan teams and Holistic Resource Management Teams to establish grazing and recreational use plans that balance needs of users with those of endangered fish and wildlife species and sensitive habitat areas. Carry out administrative duties of UCCE County Director and Inyo County Department Head, including affirmative action reporting. Collaborate with federal, state and local agencies (NV and CA Water Quality, CA Fish and Game, US Forest Service, BLM, and LADWP) on land use planning to promote water quality and quantity protection. Present workshops on watershed processes, grazing management, and pesticide use. Respond to public information requests as needed. Prepare and defend budget and position requests at County and University level.

October 1997-
September 2000

Researcher, various titles (Graduate, Postgraduate, Staff) University of California (Davis), Department of Agronomy & Range, Davis, California. Act as Project Manager for Water Resource Center and NASA-funded grants. Design, plan and conduct applied agricultural, watershed and fisheries research in coastal, mountain, and intermountain regions. Plan and evaluate research designs to assess land use impacts on water quality and water temperature using traditional ground-based instruments, GPS, GIS (ArcView) and remote sensing technologies. Create, modify and/or implement research protocols for sampling and analyzing water quality, vegetation, macroinvertebrate, and fish data using accepted techniques. Create and maintain databases. Train farm advisors and research personnel on water quality and water temperature monitoring and data collection. Use common statistical methods (regression, multivariate analysis) and programs (Systat, SAS) to analyze and present data. Hire, train and supervise field assistants, contract labor, and students. Prepare extension publications, journal articles, and professional presentations. Perform literature searches in support of study design, grant preparation, report writing, and presentations. Design educational materials and programs for UCCE clientele. Advise on irrigation and water management practices compatible with ecosystem needs. Prepare budgets, write grants and submit reports for funding agencies.

1998-2001:

Consultant in watershed monitoring and analysis, self-employed, Davis, California. Design and conduct watershed analyses, fish habitat surveys (endangered and/or native species), vegetation monitoring and analysis, canopy coverage surveys, water quality and stream temperature monitoring programs for private and non-profit entities, including Resource Conservation Districts, the U.S. Forest Service, and irrigation districts in California and Nevada. Coordinate with university research groups, cooperative extension, rancher's groups, and citizen monitors on data collection and dissemination. Prepare technical reports and analyses. Recommend further research actions and/or implementation of management protocols.

SELECTED PUBLICATIONS

- Vance, L.K. and K.W. Tate. 1998. Stream temperature: a literature review. Range Reports 34, University of California Cooperative Extension.
- Vance, L.K. 2000. Report on Water Quality in the East Walker River Watershed, California. North Mono County Resource Conservation District, Coleville, California.
- Vance, L.K. 2000. Report on Channel Morphology, Canopy Cover and Stream Temperature in the Garcia River Watershed, California. Mendocino County Resource Conservation District, Mendocino, California.
- Vance, L.K. and K.W. Tate. 2001. Habitat features and aquatic health: Evaluating California's Stream Bioassessment Procedure in natural and artificial streams in a grazed Eastern Sierra valley. UC Davis Rangeland Watershed Program.
- Lewis, D.J., L. K. Vance, K.W. Tate, C. Battaglia and J.M. Harper. 2003. Stream temperature in the Garcia River Watershed: The relationships of air temperature, canopy, and geographic position to stream thermodynamics. Proceedings of the Riparian Habitat and Floodplains Conference, Sacramento, CA.
- Vance, L.K. 2004. Record of Establishment for the Haypress Meadows Resource Natural Area, Klamath National Forest, California. Pacific Southwest Research Station. 33 pp.
- Vance, L.K. 2005. Watershed assessment of the Cottonwood and Whitewater watersheds. Report to the Bureau of Land Management, Malta, Montana. Available at: http://www.mtnhp.org/Reports/Water_Assess.pdf
- Vance, L.K., G. Kudray, and D. Stagliano. 2006. Watershed assessment of the Middle Powder Watershed. Report to the Bureau of Land Management, Miles City, Montana.
- Vance, L.K., G. Kudray and S.V. Cooper. 2006. Crosswalking National Wetland Inventory attributes to hydrogeomorphic functions and vegetation communities: a pilot study in the Gallatin Valley, Montana. Report to the Montana Department of Environmental Quality and the U.S. Environmental Protection Agency.

SELECTED PRESENTATIONS:

- Vance, L.K. Sources of nutrient loading in Eastern Sierra reservoirs. North Mono County Resource Conservation District, Coleville, CA, February 10, 2000.
- Vance, L.K. Nutrient loading of streams in a grazed wet meadow ecosystem. Second National Natural Resources Conference, Association of Natural Resources Education Professionals, Lake Tahoe, NV, May 16, 2000.
- Delmas, R.E. and L.K. Vance. Canopy cover and rates of heating in a forested rangeland stream. Second National Natural Resources Conference, Association of Natural Resources Education Professionals, Lake Tahoe, NV, May 16, 2000.
- Lancaster, D.L. and L.K. Vance. Thermal stratification in a California Rangeland Stream. Second National Natural Resources Conference, Association of Natural Resources Education Professionals, Lake Tahoe, NV, May 16, 2000.
- Vance L.K. Assessment and monitoring techniques for water quality studies. Guest lecture in Environmental Analysis, ESPM 102b, University of California, Berkeley, October 24 and 25, 2000; October 30 and 31, 2001; and October 22 and 23, 2002, October 10, 2003.
- Vance, L.K. Nutrient loading, land use, and reservoir eutrophication in the Upper Walker River Watershed. North

Mono County Resource Conservation District, Coleville, CA, March 8, 2001.

Vance, L.K. and K.W. Tate. Water Quality Monitoring, Part I: Nutrients. UC Davis Extension, Davis, CA, September

10 and 11th, 2001, February 10 and 11, 2003..

Lewis, D.J., L. K. Vance, K.W. Tate, C. Battaglia and J.M. Harper. Stream Temperature in the Garcia River Watershed: The Relationships of Air Temperature, Canopy, and Geographic Position to Stream Thermodynamics. Riparian Habitat and Floodplains Conference, Sacramento, CA, March 12, 2001

Keller, K.E., and L.K. Vance. Riparian Processes. UC Davis Extension, Davis, CA, June 11 and 12th, 2002.

Vance, L.K. and G. Kudray. From Prairie Potholes to Gallery Forests: Watershed Assessment in Big Sky Country. Wetland Monitoring and Assessment in the Northern Great Plains and Rocky Mountains (EPA Region VIII State and Tribal Wetland Work Group Meeting). Golden, CO, October 27, 2005.

Vance, L.K. Mapping and Assessment of Geographically Isolated Wetlands after Rapanos/Carabell. American Water Resources Association, Montana Chapter. Polson, MT. October 13, 2006.

RESEARCH AND TRAINING GRANTS:

Vance, L.K. and G. Kudray. 2006. Mapping wetlands and riparian areas in the Upper Clark Fork River Basin. Montana Department of Justice, Natural Resource Damage Program. \$71,000.

Vance, L.K. 2006. Mapping and analysis of geographically isolated wetlands. United States Environmental Protection Agency. \$107,950.

Vance, L.K. 2006. Developing a Level 1 wetland assessment tool. U.S. Environmental Protection Agency. \$50,400.

Vance, L.K. 2002. Training on small drinking water systems. California Department of Water Resources. \$13,000.

Vance, L.K. 2001-2002. Training on Inland Fish Identification. California Department of Fish and Game. \$11,500.

Tate, K.W., L.K. Vance, Z. Wan, P. Gong, and G.S. Biging. 1999-2003. Using remote sensing to monitor the impacts of flood-irrigation of meadows in the East Walker River Basin of California. NASA Earth Science Mission, \$543,000.

Vance, L.K. and K.W. Tate. Habitat features and aquatic health: Evaluating California's Stream Bioassessment Procedure in natural and artificial streams in a grazed Eastern Sierra valley. Wildland and Water Resources 1999-2001. \$47,825.

Tate, K.W., L.K. Vance, B. Allen-Diaz, R. Delmas, D. Drake, L. Forero, H. George, R. Gildersleeve, J. Harper, D. Lancaster, D. Lile, and G. Markegaard, 1998-2000. Watershed Scale Stream Temperature Monitoring Outreach and Applied Research Project. University of California DANR Competitive Grant, 1998-2000. \$57,812.

Tate, K.W., L. K. Vance, D. L. Lewis and J.M. Harper. 1998-99. Stream Temperature and Sediment Inventory, Monitoring, and Applied Research Program. California Farm Bureau Federation. \$44,000.